



ECCENTRIC STRENGTH DEVELOPMENT IN THE JUMPS

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MTCCCA '24

First Draft Due 11/15/24

INTRODUCTION



ECCENTRIC STRENGTH DEVELOPMENT IN THE “JUMPS”

- Eccentric Strength Overview

*Referring mostly to ‘Reactive Strength’ or Elasticity
Stiffness qualities as well
Not slow descent work*

- Philosophy

- Methodology & Progressions

- Sample Exercises

*Weightlifting
Multi-jumps
Complexes*

- Programming Suggestions



ECCENTRIC STRENGTH OVERVIEW

- Not referring to slow descents, instead I'm focusing on stiffness and reversal ability

- **Putting muscles on stretch, strength while lengthening, huge tension**

Ability to put muscles/tendons/ligaments on stretch reflex is key

Create an environment to maximize it ie involuntary, coax it out, not brute strength

Force absorption over force production

- Kind of like vertical change of direction
- Stretch shortening cycle
- Applies to every single step in a sprint and every jump takeoff
- **Training to decrease GC while increasing power output**

- Ground Contact Time Considerations

What does your event require?

Work around that...above, below, but not far off it...pay attention to gap between training and comp demands

- One facet of a comprehensive strength program

Absolute Strength, Rate of Force Development, Ballistic Lifting...Eccentric Stiffness/DIS

PHILOSOPHY OF ECCENTRIC STRENGTH DEVELOPMENT

- **It's all about Transfer!**

*Trying to get to a point where you can train at high intensities more often, safely
Specificity and how that unfolds with respect to Overload + Recovery*

- **Training Must Progress to the Point Where it Makes Competition Easier**

*Meeting, and maybe exceeding competition demands
Be aware of gaps between training inputs and competition requirement*

- **Reversal Ability or Dynamic Isometric Strength is Philosopher's Stone**

*Target training the ability to convert from eccentric to concentric
Faster you can cope with eccentric moments the more elastic energy you'll store and utilize
Faster you'll reverse/bounce out of there! Accelerate into concentric phase*

- **Impulse and Rates of Force That Are Key**

- **Reversal Speeds is the Foundational Quality**

- **Loading up the specific GC times/Reversal Times is What We're After**

Work around that playing with force and speed

- **Thematic Training**

Keep neural days neural, general days general

- **Other Considerations: Core, Posterior Chain**

Forces In Sprints, Jumps, and Deceleration



Triple Jump - 15-22x bodyweight
Deceleration - 5-6+x bodyweight
Max Velocity - 5-6+x bodyweight
35in Depth Drop - 5.4x bodyweight
35in Depth Jump - 4.9x bodyweight
CMJ - 4+x bodyweight
Acceleration - 2.2x bodyweight

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- Does Your Training Match These Demands?
- Are You Progressing Appropriately?
- How Are You Progressing?
- Do You Have Built In Restoration?

METHODOLOGY & PROGRESSIONS

- Force, Power, Speed
Keep it simple & consistent
- Bilateral vs Unilateral
Can fluctuate
- Stiffness vs Reactive
- Blend These Concepts for Progressions ->
- Recovery Timeframes
- Core, Posterior Chain
- **Move Bar as Fast as Possible!**
Acceleration of weight critical
- Consider Core and Posterior Chain too
Doesn't have to be only squat type movements
- Track Data Points Regularly
*Don't need Hawkins Force Plates or Keiser
\$5 App will do just fine!*
- Bilateral Low Force Stiffness
- Bilateral High Force Stiffness
- Unilateral Low Force Stiffness
- Unilateral High Force Stiffness
- Bilateral Low Power Reactive
- Bilateral High Power Reactive
- Unilateral Low Power Reactive
- Unilateral High Power Reactive
- Bilateral Low Speed Reactive
- Bilateral High Speed Reactive
- Unilateral Low Speed Reactive
- Unilateral High Speed Reactive

EXAMPLES

- **Bilateral Low Force Stiffness:** Low Box Depth Drops, Unweighted TB Drops
- **Bilateral High Force Stiffness:** High Box Depth Drops, Weighted TB Drops, Keiser Drops
- **Unilateral Low Force Stiffness:** SL Low Box Depth Drops, SL Unweighted TB Drops
- **Unilateral High Force Stiffness:** SL High Box Depth Drops, SL Weighted TB Drops
- **Bilateral Low Power Reactive:** Low Box Depth Jumps, Unweighted TB Drop Jumps, Keiser Box Squat
- **Bilateral High Power Reactive:** High Box Depth Jumps, Weighted TB Drop Jumps, Keiser Reactive Quarter Squats
- **Unilateral Low Power Reactive:** SL Low Box Depth Jumps, SL Pogos
- **Unilateral High Power Reactive:** SL High Box Depth Jumps (Weighted?), SL Hurdle Hops

SAMPLE EXERCISES

- TB Drops
- TB Jumps
- Depth Drops
- Depth Jumps
- Pogos
- Horizontal Reactive Box Jumps
- Keiser Drops
- Keiser Reactive Quarter Squats
- Hamstring Switches
- Good Morning WB Punch
- Good Morning Plate Catch
- MB Drops
- Core Considerations



















PROGRAMMING RECOMMENDATIONS

Week 1: September 9-15

Monday, Sept 9: Basic Power Development, Absolute Strength Preparation, Potentiation Clusters

- Olympic Lifts: Power Cleans/Pulls (6-8 x 3-4 reps)
- Static Lift + Multijump Complimentary: Squat + Bilateral Vertical Box Jump (Full Range) (5-7 x 4-5 reps + 4-5 Jumps)
- Ancillary Lifts: Core/Back
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Wednesday, Sept 11: Basic Power Development, Absolute Strength Preparation, Eccentric Stiffness

- Olympic Lift: Snatch/Pulls (6-8 x 3-4 reps)
- Eccentric Lifts + Stiffness: Keiser Deep Squat + TB AFSM Drops (6-7 x 4-6 reps + 4-6 Drops)
- Static Lifts: Bench (5-7 x 5-6 reps)
- Ancillary Lifts: Core/Back
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Friday, Sept 13: Basic Power Development, Absolute Strength Preparation, Potentiation Clusters

- Olympic Lifts: Power Cleans/Pulls (6-8 x 3-4 reps)
- Static Lifts + Multijump Complimentary: Front Squats + TB Jump (5-7 x 4-5 reps + 4-5 x Jumps)
- Static Lift: RDL
- Ancillary Lifts: Core/Back
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Week 1: October 7-13

Monday, Oct 7: Rate of Force Dev Prep, Absolute Strength Preparation, Potentiation Clusters

- Olympic Lifts: Power Cleans/Pulls (6-8 x 2-4 reps)
 - a. Maybe fit Hawkins SL depth jump test in here throughout the cleans, they can go get it in any time. I'd usually do 4 attempts per leg.
- Static Lift + Multijump Complimentary: TB DL + Unilateral Vertical Box Jump (5-6 x 4-5 reps + 3/3 Jumps)
 - a. Might have to make the TB band resisted as well where they stand on the band, not opposed to just making it band resisted for everyone
- Static Lift: Hip Lift (5 x 5)
- Ancillary Lifts: Core/Back (hit this hard)
 - a. Could complex this with the hip lift
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Wednesday, Oct 9: Rate of Force Dev Prep, Absolute Strength Preparation, Eccentric Stiffness

- Olympic Lift: Snatch/Pulls (6-8 x 3-4 reps)
- Eccentric Lifts + Stiffness: Keiser Box Squat + Band Resisted TB AFSM Drops (5-6 x 4-6 reps + 4-6 Drops)
- Static Lifts: Incline Bench (5 x 5 reps)
- Ancillary Lifts: Core/Back (hit this hard)
 - a. Could complex this with incline bench
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Friday, Oct 11: Rate of Force Dev Prep, Absolute Strength Preparation, Potentiation Clusters

- Olympic Lifts: Hang Cleans/Pulls (6-8 x 3-4 reps)
 - a. Maybe fit Hawkins DL depth jump test in here throughout the cleans, they can go get it in any time. 4 attempts is good.
- Static Lifts + Stiffness + Multijump Complimentary: Back Squats + Keiser Drops + DL Low Box Depth Jumps (5-6 x 4-5 reps + 4-6 Drops + 4 x Jumps)
- Static Lift: RDL
- Ancillary Lifts: Core/Back (hit this hard)
 - a. Could complex this with RDL
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Week 1: November 4-10

Monday, Nov 4: Rate of Force Dev, Absolute Strength, Potentiation Clusters

- Olympic Lifts: Power Cleans/Pulls (6-7 x 1-3 reps)
 - a. Maybe fit Hawkins SL or DL depth jump test in here throughout the cleans, they can go get it in any time. I'd usually do 3 attempts per leg or 3 total for DL.
 - i. Could alternate which one we do week to week
- Static Lift + Multijump Complimentary + Stiffness: Safety Bar RFESSS + Unilateral Vertical Box Jumps + Split Stance Barbell Drops (5-6 x 3/3-4/4 reps + 3/3 Jumps + 3/3 Drops)
- Ancillary Lifts: Core/Back (hit this hard), Posterior Chain
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Wednesday, Nov 6: Rate of Force Dev Prep, Absolute Strength Preparation, Eccentric Stiffness

- Olympic Lift: Snatch/Pulls (6-7 x 2-4 reps)
- Eccentric Lifts + Stiffness: Keiser Reactive Quarter Squat + Band Resisted TB AFSM Drop Jump (5-6 x 4 reps + 3 Drop Jumps)
 - a. Could fit a third exercise in this complex for the sake of flow, maybe shift multithrows or core here?
- Ancillary Lifts: Core/Back (hit this hard)
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

Friday, Nov 8: Rate of Force Dev, Absolute Strength, Potentiation Clusters

- Olympic Lifts: Hang Cleans/Pulls (6-7 x 1-3 reps)
- Static Lifts + Multijump Complimentary + Stiffness: Back Squats + TB Jumps + Keiser Drops (5-6 x 2-3 reps + 3 Jumps + 3 x Drops)
- Ancillary Lifts: Core/Back (hit this hard), Posterior Chain
- Multithrow Complimentary: 1-2 MB Throws, 10-20 reps

EXERCISE SELECTION FOR HS ATHLETES

- TB Drops: Unweighted or with dumbbells, Bands?
- TB Jumps: Unweighted or with dumbbells, Bands?
- Depth Drops: Low boxes, methodically raised over the season
- Depth Jumps: Low boxes, methodically raised over the season
- Pogos: Really good one, can use wickets, bands, or just stay in place
- Hamstring Switches: Plate
- Good Morning Catch/Punch: Plate, WB?
- MB Drops/Drop Throws: Weight of MB, Complex
- Core Considerations: Stiff Catches

CONCLUSION

- What are the competition demands?
- How do you address those competition demands?
- How do you progress appropriately to those competition demands?
- Can you progress beyond competition demands?

THANKS FOR COMING!

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- Further Resources

Coachtube.com: <https://coachtube.com/users/rthurnhoffer>

Linktree: <https://linktr.ee/bobthurnhoffer>